

REMARKS

An RCE application accompanies this submission, so entry and earnest consideration of the foregoing amendments are respectfully requested. Claims 20-24 have been cancelled from this application, claims 3, 4, 6, 8-14, and 17-19 are withdrawn from consideration, and claims 25-30 are newly added. Claims 1, 2, 5, 7, 15, and 16 stand rejected under 35 U.S.C. 102(e) as allegedly anticipated by Chen et al. 6,916,398 B2.

Applicant has amended claims 1, 2, 5, and 15 and added new claims 25-30 to more clearly identify a novel and non-obvious aspects of embodiments of the invention. Support for the amended and newly added features can be found, among other locations, in paragraphs 26 and 42 of the Specification. Applicant submits that no new matter is added to the application by this submission.

Claim 1

Among other features, amended claim 1 recites “flowing an inert gas into the atomic layer deposition chamber to substantially purge the interior of the chamber during a *purge time*, wherein the purge time is **controlled to leave** a residual portion of the first reactant gas” (*Emphasis added*). The Office Action alleges that Chen et al discloses a pulse of tantalum containing compound may still be in the chamber when a pulse of the nitrogen compound enters (see column 15 lines 38-40).

However, Applicant respectfully submits that Chen et al does not teach or disclose this feature. On the contrary, Chen et al only teaches or discloses that the duration of the purge gas and/or pump evacuation should be **long enough to prevent** the pulse of the tantalum containing compound and the nitrogen containing compound from **mixing together** in the reaction zone.

This teaching of Chen et al is quite different from the claimed feature of “the purge time is controlled to leave a residual portion of the first reactant gas,” as expressly recited in amended claim 1.

For at least this reason, claim 1 (as amended herein) patently defines over the cited art of record. As claim 2 directly depend from amended claim 1, claim 2 is patentable by virtue of its dependency from patentable claim 1.

Claim 5

Amended claim 5 recites a step of “flowing a purge gas into the reactor chamber to substantially purge the interior of the reactor chamber during a purge time, wherein the purge time is controlled to leave a residual portion of a first reactant material” (*Emphasis added*).

However, Applicant respectfully submits that Chen et al only teaches or discloses the pulse of tantalum containing compound still may be in the chamber and the duration of the purge gas and/or pump evacuation should be long enough to prevent the pulse of the tantalum containing compound and the nitrogen containing compound from mixing together in the reaction zone.

Therefore, Chen does not teach or suggest that the purge time is controlled to leave a residual portion of the first reactant gas, as expressly recited in amended claim 5.

For at least this reason, claim 5 (as amended herein) patently defines over the cited art of record. As claim 7 directly depend from amended claim 5, claim 7 is patentable by virtue of its dependency from patentable claim 5.

Claim 15

Amended claim 15 recites a step of “employing a reactor chamber purge to flow a purge gas into the reactor chamber to substantially purge the interior of the reactor chamber *during a purge time*, wherein the *purge time is controlled to leave* a residual portion of a first reactant material.” (*Emphasis added*)

For at least the same reason set forth above in connection with claims 1 and 5, Applicant respectfully asserts that the cited reference is legally deficient for the purpose of rendering independent claim 15 unpatentable. Specifically, Applicant respectfully asserts that the reference does not teach or reasonably suggest at least the features/limitation emphasized above in claim 15.

Insofar as claim 16 depends from claim 15, the claim is also allowable at least by virtue of its dependency.

Claims 25-30

Newly added claims 25-30 recite a step of *the purge time is shortened* to less than about 0.5 or about 0.3 seconds. As the cited reference does not teach or suggest the feature as set forth in claims 25-30, claims 25-30 are allowable over the cited reference.

All fees associated with this submission have been provided in an accompanying credit card authorization. If, however, any additional fee is deemed to be payable, you are hereby authorized to charge any such fee to Deposit Account No. 20-0778.

Respectfully submitted,

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